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EXAMINER

NORTON, NADINE GEORGIANNA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 04/23/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/852,107

Applicant(s)

BANERJEE, DWIJEN K.

Examiner

Nadine Norton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 14-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-13, drawn to a process, classified in class 208, subclass 68.
- II. Claims 14-18, drawn to an apparatus, classified in class 422, subclass 139+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be used to convert a materially different material such as aqueous reactive sludge or slurry.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Kim S. Manson on April 9, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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### *Claim Objections*

In claim 6, applicant employs the phrase "hydrogen gas with gaseous hydrogen product". Does applicant intend to use the phrase "hydrogen gas with gaseous hydrocarbon product"?

Claim 7 and is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 7 does not further limit claim 1 because it further limits an "apparatus" as opposed to the recited "process" steps in claim 1.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 step d), applicant refers to "chemically" reacting the feed. It appears as if applicant intends to claim the "catalytic" treatment of the feed because a catalyst is present.

In claim 3, it is unclear if the "injection" and "bubbling" are separate steps or if the injection causes the bubbling.

The term "hot" in claim 4 is a relative term which renders the claim indefinite. It is unclear what "hot" is relative to.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al. (6,153,086).

Applicant is claiming a process for the combined thermal and catalytic treatment of a heavy petroleum feed in a slurry counterflow reactor.

The reference of Gupta et al. (6,153,086) discloses a process for treating a heavy feed. See column 4, lines 5-8. The process involves passing a liquid/vapor effluent into an upper portion of vessel (16) where it separates into a liquid and a gas. See column 5, lines 22-27. The reference appears to show downward baffles in the drawing. See drawing near area where line (56) flows into. The separated liquid flows downward through a bed of catalyst countercurrent to upflowing hydrogen. See column 5, lines 26-30. The catalyst bed can be in the form of a slurry. See column 6, lines 23-24. The reference teaches process conditions including a pressure of 50-2,500 psig and a temperature of 40-450°F (104-842°F). See column 4, lines 2-6. The hydrotreated liquid effluent is withdrawn from the bottom of the reactor. See column 5, lines 29-34. Hydrogen and vapors are separated and recovered. See column 5, lines 40-65. The reference suggests conventional hydrogen recycling and heat exchange. See column 5, line 67, column 6, line 1, and column 4, lines 60-65.

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The reference of Gupta et al.(6,153,086) succeeds at disclosing a process with steps corresponding to applicant's downward passage of a liquid feed through a slurry bed with an upward countercurrent flow of hydrogen. The hydrogen would naturally bubble upward because it is added to the bottom of liquid/slurry. In addition, the reference succeeds at disclosing applicant's product separation steps. The reference's disclosure of a bypass tube (col.6, lines 1-10) is considered to meet applicant's pressure let down limitation since it functions to prevent flooding in the event the pressure because too great. Also, the reference's disclosure of a slurry bed is considered to encompass any conventional apparatus that is required to operate a slurry catalyst system, such as the catalyst addition apparatus defined in applicant's dependent claims, because such apparatus is needed to support the operation of a slurry system.

Several differences are noted between the reference of Gupta et al.(6,153,086) and applicant's claimed invention. The reference does not disclose the addition of the feed to the exact top of the vessel. In addition, Gupta et al.(6,153,086) is silent about employing a nozzle to deliver the feed into the top of the reactor vessel.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that the addition of applicant's feed to the upper portion of the reactor vessel in Gupta et al.(6,153,086) accomplishes similar conversion to applicant's addition to the top of the vessel because a similar feed downflow/hydrogen upflow is accomplished. The exact top does not appear to effect the process steps because the required countercurrent contact is still accomplished.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ any available known means, including a nozzle, to deliver the feed to the

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upper portion of the reaction vessel, because the reference is silent about the specific type of apparatus employed to deliver the feed into the upper portion of the reaction vessel. The selection of a nozzle does not appear to distinguish the claimed process because the same sequence of steps are accomplished regardless of the specific apparatus employed to accomplish the delivery of feed to the system.

***Claim Rejections - 35 USC § 103***

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al.(6,153,086) as applied to claims 1-5, 7-8, and 11-13 above, and further in view of Wang et al.(4,820,503).

See teachings and obviousness of Gupta et al.(6,153,086) above.

It is noted that the Gupta et al.(6,153,086) is silent about a filter or filtering the upflowing gaseous products including hydrogen with a screen.

The reference of Wang et al.(4,820,503) is cited to illustrate that placing a screen at the top of a reactor prevents the loss of catalyst particles from being carried out the top of the reactor with reaction products.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Gupta et al.(6,153,086) to include a screen at the top of the reactor because the reference of Wang et al.(4,820,503) illustrates that the placement of such a screen desirably prevents particles from being carried out by reaction products.

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***Prior Art of Record***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The attached references are cited to illustrate the relative state of the art with respect to counter-current and/or slurry hydroprocessing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadine Norton whose telephone number is 703-305-2667. The examiner can normally be reached on Monday through Thursday from 8:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

N.N.

April 20, 2003

**NADINE G. NORTON  
PRIMARY EXAMINER**

*Nadine Norton*